

**AFCTN Report
94-087**

**AFCTB-ID
94-095**



Technical Raster Transfer Using:

**Loral Training & Technical Services'
Data Supporting:**



STRICOM MILES Program

(Contract #N61339-91-C-0140)

MIL-STD-1840A

MIL-R-28002A (Raster)

Quick Short Test Report

09 July 1994

DISTRIBUTION STATEMENT A

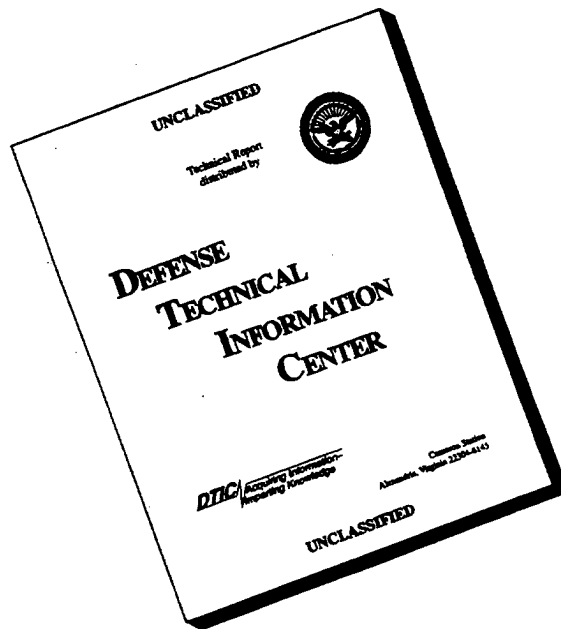
Approved for public release
Distribution Unlimited



Prepared for
Electronic Systems Center
Air Force CALS Program Office
HQ ESC/AV-2
4027 Colonel Glenn Hwy Suite 300
Dayton OH 45431-1672

DTIC QUALITY INSPECTED 3

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

AFCTN Test Report
94-087

AFCTB-ID
94-095

Technical Raster Transfer
Using:
Loral Training & Technical Services' Data:
Supporting:
STRICOM MILES Program
(Contract #N61339-91-C-0140)

MIL-STD-1840A
MIL-R-28002A (Raster)

Quick Short Test Report

09 July 1994

Prepared By
Air Force CALS Test Bed
Wright-Patterson AFB, OH 45433

AFCTB Contact
Gary Lammers
(513) 427-2295

AFCTN Contact
Mel Lammers
(513) 427-2295

DTIC QUALITY INSPECTED 8

Air Force CALS Test Bed

Notification of Test Results

09 July 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

Loral Training & Technical Services

Identified as follows:

Title:	Technical Raster Transfer
Program:	MILES
Program Office:	STRICOM
Contract No.:	N61339-91-C-0140
QSTR No.:	AFCTB-ID 94-095

Received on the following media: **9-Track Tape**

The results of the QSTR evaluation are as follows:

MIL-STD-1840A Standard	Fail
MIL-STD-1840A Media Format:	Pass
MIL-D-28000A IGES:	N/A
MIL-M-28001B SGML:	N/A
MIL-R-28002A Raster:	Fail
MIL-D-28003 CGM:	N/A

Formal results with associated disclaimer are documented and available from the AFCTB.

**Air Force CALS Test Bed
HQ ESC/AV-2P
4027 Colonel Glenn Highway, Suite 300
Dayton, OH 45431-1672
Phone: 513-257-3085 FAX: 513-257-5881**

DISCLAIMER

This document was prepared as an account of the work sponsored by the Air Force. Neither the United States Government, the Air Force, nor any of their employees makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, nor represents that its use would not infringe on privately owned rights. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the Air Force. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the Air Force, and shall not be used for advertising or product endorsement purposes.

Available to the public from the
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161

This report and those involved in its preparation do not endorse any product, process, or company stated herein. Use of these means by anyone does not imply certification by the Air Force CALS Test Network (AFCTN).

Contents

1.	Introduction.....	1
1.1.	Background.....	1
1.2.	Purpose.....	2
2.	Test Parameters.....	3
3.	1840A Analysis.....	5
3.1.	External Packaging.....	5
3.2.	Transmission Envelope.....	5
3.2.1.	Tape Formats.....	5
3.2.2.	Declaration and Header Fields.....	6
4.	IGES Analysis.....	6
5.	SGML Analysis.....	6
6.	Raster Analysis.....	6
7.	CGM Analysis.....	9
8.	Conclusions and Recommendations.....	10
9.	Appendix A - Tapetool Report Logs.....	11
9.1.	Tape Catalog.....	11
9.2.	Tape Evaluation Log.....	12
9.3.	Tape File Set Validation Log.....	13
9.4.	Other Tape Reading Logs.....	16
10.	Appendix D - Detailed Raster Analysis.....	17
10.1.	File D001R004 - Corrected.....	17
10.1.1.	Output RxHighlight.....	17
10.1.2.	Output RxHighlight.....	18

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Loral Training & Technical Service's interpretation and use of the CALS standards in transferring technical Raster data. Loral used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 94-095

**Date of
Evaluation:** 09 July 1994

Evaluator: George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/AV-2P
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

**Data
Originator:** Cheri Laudenslager
Loral Training & Technical Services
3601 Koppens Way
Chesapeake VA 23323
(804) 487-3809 X359

**Data
Description:** Technical Raster Test
1 Document Declaration file
12 Raster files

**Data
Source System:**

1840

HARDWARE

SUN OS
Kennedy 9610 Tapedrive

SOFTWARE

Tapetool 1.2.10
CAD 5 Rev. 4.0 Converter

Raster

HARDWARE

SUN OS

SOFTWARE

CAD 5 Rev. 4.0

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN *Tapetool v1.2.10 UNIX*
XSoft *CAPS/CALS v40.4*

MIL-R-28002 (Raster)

HP 735

AFCTN *xrastb.hp*
InterCAP *X-Change v7.82*
ArborText *g42tiff*
Island Software *IslandPaint v3.0*

SGI Indigo2

AFCTN *xrastb.sgi*
IGES Data Analysis (IDA) *CALSVIEW.*

SUN SparcStation 2

ArborText *g42tiff*
Auto-trol *CCITT Conversion 1.1*
Carberry *CADLeaf Plus v3.1*
AFCTN *validg4*
AFCTN *xrastb.sun4*
IDA *IGESView v3.0*
Island Software *IslandPaint v3.0*

PC 486

AFCTN *validg4*
IDA *IGESView Windows*
Inset Systems *HiJaak Pro*
Expert Graphics *RxHighlight v1.0*

Standards

Tested:

MIL-STD-1840A
MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was not marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3. However, a similar commercial marking was attached to the outside of the box.

The tape was not enclosed in a barrier bag or barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1., was missing. Some 9-track tape units require this BPI to be set manually. A packing list showing all files recorded on the tape was not enclosed.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.10* utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using XSoft's *CAPS read1840A* utility without any reported errors.

The physical structure of the tape meets the requirements defined in MIL-STD-1840A and ANSI x3.27.

3.2.2 Declaration and Header Fields

No errors were reported in the Document Declaration file and data file headers. This portion of the tape meets the CALS MIL-STD-1840A requirements.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included in this evaluation.

6. Raster Analysis

The tape contained 12 Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported that all files failed to meet the CALS MIL-R-28002A specification.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

When the files were checked, they were found to have two CALS Raster headers. This can occur when the tape writing application inserts another header on top of the header applied by the Raster creation utility. Shown below is a screen dump of file D001R001. Note the two headers. The second header starts at location 4000 which should be the start of the Raster data.

```

wpafctb1% od -a r001 |more
00000000 s r c d o c i d : sp C 9 3 5 9 4
00000020 3 9 sp sp sp sp sp sp sp sp sp sp sp sp sp sp
00000040 sp sp sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00002000 d s t d o c i d : sp 9 3 E 0 0 2
00002200 l sp sp sp sp sp sp sp sp sp sp sp sp sp sp
00002400 sp sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00004000 t x t f i l i d : sp N O N E sp sp
00004200 sp sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00006000 f i g i d : sp N O N E sp sp sp sp
00006200 sp sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00010000 s r c g p h : sp N O N E sp sp sp sp
00010200 sp sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00012000 d o c c l s : sp U N C L A S S I
00012200 F I E D sp sp sp sp sp sp sp sp sp sp
00012400 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00014000 r t y p e : sp l sp sp sp sp sp sp sp sp
00014000 r t y p e : sp l sp sp sp sp sp sp sp sp
00014200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00016000 r o r i e n t : sp 0 0 0 , 2 7 0
00016200 sp sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00020000 r p e l c n t : sp 0 0 3 4 0 0 ,
00020200 0 0 4 4 0 0 sp sp sp sp sp sp sp sp sp
00020400 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00022000 r d e n s t y : sp 0 2 0 0 sp sp sp sp
00022200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00024000 n o t e s : sp N O N E sp sp sp sp sp
00024200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00040000 s r c d o c i d : sp N O N E sp sp sp
00040200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00042000 d s t d o c i d : sp N O N E sp sp sp
00042200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00044000 t x t f i l i d : sp N O N E sp sp sp
00044000 t x t f i l i d : sp N O N E sp sp sp
00044200 sp sp sp sp sp sp sp sp sp sp sp sp
*
00046000 f i g i d : sp N O N E sp sp sp sp sp
00046200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00050000 s r c g p h : sp N O N E sp sp sp sp sp
00050200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00052000 d o c c l s : sp U N C L A S S sp
00052200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00054000 r t y p e : sp l sp sp sp sp sp sp sp sp
00054200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00056000 r o r i e n t : sp 0 0 0 , 2 7 0
00056200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00060000 r p e l c n t : sp 0 1 0 0 2 4 ,
00060200 0 0 7 4 8 0 sp sp sp sp sp sp sp sp sp
00060400 sp sp sp sp sp sp sp sp sp sp sp sp sp
*
00062000 r d e n s t y : sp 0 4 0 0 sp sp sp sp
00062000 r d e n s t y : sp 0 4 0 0 sp sp sp sp
00062200 sp sp sp sp sp sp sp sp sp sp sp sp sp
*

```

```

0006400  n   o   t   e   s   :   sp   F   O   R   M   T   E   K   ,   sp
0006420  I   n   c   o   r   p   o   r   a   t   e   d   n
0006440  sp   C   e   r   m   s   sp   a   n   y   L   o   c   k   h   e   a   n
0006460  d   e   r   s   sp   n   D   ;   r   o   c   6   sp   1   sp   g   h
0006500  sp   p   A   sp   1   5   2   2   0   ;   sp   (   4   1   2   )
0006520  sp   9   3   7   -   4   9   0   0   sp   sp   sp   sp   sp   sp
0006540  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0006600  del del del del del del del del del del del del del del del del
0006620  del del del del del del del del del del del del del del del del
0006640  vt   U   T   2   nl   k   q   ^   Q   eot   R   #   S   #   etx   A
0006660  fs   5   K   s   soh   sp   c   dle   us   soh   t   Q   L   t   M   -

```

Below is a sample header showing the CALS header and the data.
Note that the data starts at location 4000.

```

wpafb1% od -a t001.cal |more
0000000  s   r   c   d   o   c   i   d   :   sp   N   O   N   E   sp   sp
0000020  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0000200  d   s   t   d   o   c   i   d   :   sp   N   O   N   E   sp   sp
0000220  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0000400  t   x   t   f   i   l   i   d   :   sp   N   O   N   E   sp   sp
0000420  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0000600  f   i   g   i   d   :   sp   N   O   N   E   sp   sp   sp   sp   sp   sp
0000620  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0001000  s   r   c   g   p   h   :   sp   N   O   N   E   sp   sp   sp   sp   sp   sp
0001020  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0001200  d   o   c   c   l   s   :   sp   N   O   N   E   sp   sp   sp   sp   sp   sp
0001220  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0001400  r   t   y   p   e   :   sp   1   sp   sp   sp   sp   sp   sp   sp   sp
0001420  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0001600  r   o   r   i   e   n   t   :   sp   0   0   0   ,   2   7   0
0001600  r   o   r   i   e   n   t   :   sp   0   0   0   ,   2   7   0
0001620  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0002000  r   p   e   l   c   n   t   :   sp   0   1   0   0   2   4   ,
0002020  0   0   7   4   8   0   sp   sp   sp   sp   sp   sp   sp   sp
0002040  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0002200  r   d   e   n   s   t   y   :   sp   0   4   0   0   sp   sp   sp   sp
0002220  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0002400  n   o   t   e   s   :   sp   N   O   N   E   sp   sp   sp   sp   sp   sp
0002420  sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp   sp
*
0004000  del del del del del del del del del del del del del del del del
0004020  del del del del del del del del del del del del del del del del
0004040  vt   U   T   2   nl   k   q   ^   Q   eot   R   #   S   #   etx   A
0004060  fs   5   K   s   soh   sp   c   dle   us   soh   t   Q   L   t   M   -

```

Loral used the AFCTN *Tapetool* utility to write the tape. This utility will insert a correct MIL-STD-1840A header on top of the supplied Raster file. Note, most Raster creation utilities insert a partial CALS header because the information on density, scan direction, pel, and line count are

inserted at that time. If the Raster files have a header, **Tapetool** should be run with the **-roff** switch activated. This prevents **Tapetool** from writing another header on top of the file.

When the AFCTN **Tapetool** utility read the tape, it striped the CALS header off, and the resulting file was then tested. This file still did not meet the CALS standards. All viewing utilities available in the AFCTB, with the exception of Inset Systems' **HiJaak Pro** would not read or display the files.

All 12 files were read into Inset Systems' **HiJaak Pro** and written out using a different name. These files could then be viewed by all of the Raster viewers without any reported errors. The AFCTN **validg4** utility reported these files as valid files. It was noted that file D001R004 was nearly 500K in size. When this file was decompressed, some systems could not handle the file without extensive disk caching operations.

The corrected files were read into the AFCTN **xrastb.sun4** viewing utility. No problems were noted except with file D001R004, which was too large for the system.

The files were read into Carberry's **CADLeaf** software and displayed without a reported error.

The files were read into Inset Systems' **HiJaak for Windows** without a reported error.

The Raster files were imported into Expert Graphics' **Rx-Highlight** and displayed without a reported error.

The Raster files do not meet the CALS MIL-R-28002 specification, due to the problem with the double headers.

7. CGM Analysis

No Computer Graphics Metafile (CGM) files were included in this evaluation.

8. Conclusions and Recommendations

The tape from Loral Training and Technical Services was basically correct. The tape could be read properly using the AFCTN *Tapetool* Software without a reported error. However, the construction of the Raster files was incorrect, due to the insertion of double headers. This caused the Raster files to be unusable. The tape does not meet the requirements defined in MIL-STD-1840A.

The errors with the Raster images are serious. The construction of the Raster files with the double headers result in unusable files. The Raster files do not meet the CALS MIL-R-28002A specification.

The tape does not meet the CALS MIL-STD-1840A requirements, due to the errors in the Raster headers.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jul 8 14:37:34 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set082

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001R001	Raster	F/00128	02048/000065	Extracted
D001R002	Raster	F/00128	02048/000043	Extracted
D001R003	Raster	F/00128	02048/000065	Extracted
D001R004	Raster	F/00128	02048/000245	Extracted
D001R005	Raster	F/00128	02048/000058	Extracted
D001R006	Raster	F/00128	02048/000075	Extracted
D001R007	Raster	F/00128	02048/000030	Extracted
D001R008	Raster	F/00128	02048/000028	Extracted
D001R009	Raster	F/00128	02048/000021	Extracted
D001R010	Raster	F/00128	02048/000023	Extracted
D001R011	Raster	F/00128	02048/000023	Extracted
D001R012	Raster	F/00128	02048/000017	Extracted

Catalog Process terminated normally.

9.2 Tape Evaluation Log

CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jul 8 14:37:02 1994

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01

4

Label Identifier: VOL1
Volume Identifier: CALS01
Volume Accessibility:
Owner Identifier:
Label Standard Version: 4

HDR1D001 CALS0100010001000000 94181 00000 000000

Label Identifier: HDR1
File Identifier: D001
File Set Identifier: CALS01
File Section Number: 0001
File Sequence Number: 0001
Generation Number: 0000
Generation Version Number: 00
Creation Date: 94181
Expiration Date: 00000
File Accessibility:
Block Count: 000000
Implementation Identifier:

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

End Of Tape File Set

Deallocating /dev/rmt0...

Tape Import Process terminated normally.

9.3 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Fri Jul 8 14:37:34 1994

MIL-STD-1840A File Set Evaluation Log

File Set: Set082

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: Loral Training and Technical Services, 3601 Koppens Way, Chesapeake,
VA 23323

srcdocid: C9359439

srcrelid: NONE

chglvl: ORIGINAL

dteisu: 19940628

dstsys: MILES

dstdocid: 93E0021

dstrelid: NONE

dtetrn: 19940630

dlvacc: NONE

filcnt: R12

ttlcls: UNCLASSIFIED

doccls: UNCLASSIFIED

doctyp: Product Data

doctl: NONE

Found file: D001R001

Extracting Raster Header Records...

Evaluating Raster Header Records...

srcdocid: C9359439

dstdocid: 93E0021

txtfilid: NONE

figid: NONE

srcgph: NONE

doccls: UNCLASSIFIED

rtype: 1

rorient: 000,270

rpelcnt: 003400,004400

rdensty: 0200
notes: NONE

Saving Raster Header File: D001R001_HDR
Saving Raster Data File: D001R001_GR4

Found file: D001R002
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: C9359439
dstdocid: 93E0021
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,270
rpelcnt: 003400,004400
rdensty: 0200
notes: NONE

Saving Raster Header File: D001R002_HDR
Saving Raster Data File: D001R002_GR4

<<<< PART OF LOG FILE REMOVED HERE >>>>

Found file: D001R012
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: C9359439
dstdocid: 93E0021
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,270
rpelcnt: 001704,002200
rdensty: 0200
notes: NONE

Saving Raster Header File: D001R012_HDR
Saving Raster Data File: D001R012_GR4

Evaluating numbering scheme...

No errors were encountered during numbering scheme evaluation.

Numbering scheme evaluation complete.

Checking file count...

No errors were encountered during file count verification.

File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

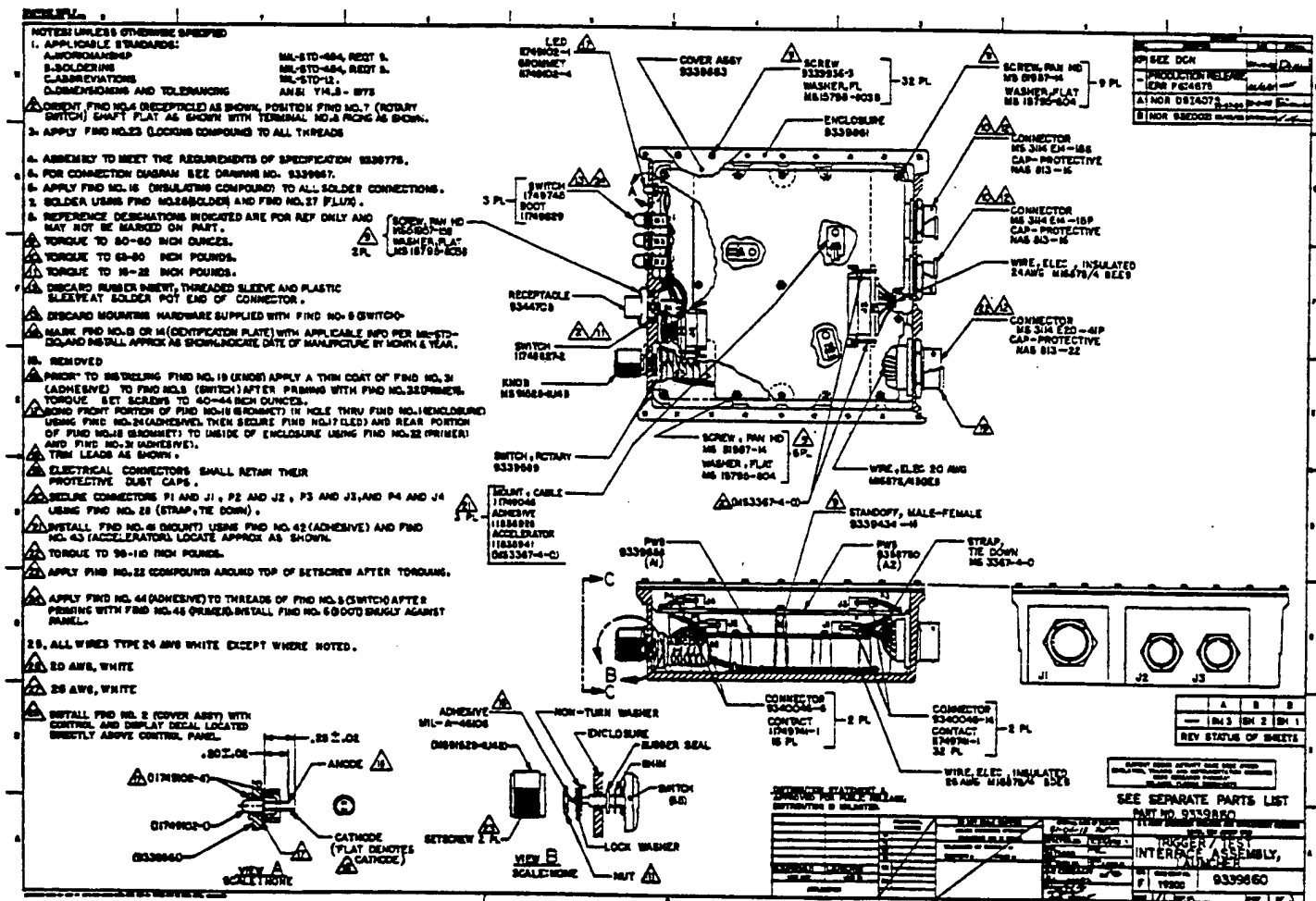
9.4 Other Tape Reading Logs

```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001      ' ---  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00211.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00212.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00213.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00214.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00215.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00216.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00217.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00218.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E00219.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E002110.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E002111.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9495/93E0021/93E002112.R.cci'.  
-- declaration file indicates 0 files of type T  
-- declaration file indicates 0 files of type G  
-- declaration file indicates 0 files of type H  
-- declaration file indicates 0 files of type Q  
-- declaration file indicates 12 files of type R  
-- declaration file indicates 0 files of type C  
-- declaration file indicates 0 files of type X  
-- declaration file indicates 0 files of type P  
-- declaration file indicates 0 files of type Z
```

10. Appendix D - Detailed Raster Analysis

10.1 File D001R004 - Corrected

10.1.1 Output RxHighlight



NOTES UNLESS OTHERWISE SPECIFIED

1. APPLICABLE STANDARDS:
 - A-FOURMATERIALS
 - B-SOLDERING
 - C-ABBREVIATIONS
 - D-DIMENSIONS AND TOLERANCES
2. ORIENT FWD NO.4 (RECEPTACLE) AS SHOWN, POSITION FWD NO.7 (ROTARY SWITCH) SHAFT FLAT AS SHOWN WITH TERMINAL NO.3 RING AS SHOWN.
3. APPLY FWD NO.23 (LOCKING COMPOUND) TO ALL THREADS
4. ASSEMBLY TO MEET THE REQUIREMENTS OF SPECIFICATION 9339775.
5. FOR CONNECTION DIAGRAM SEE DRAWING NO. 9339867.
6. APPLY FWD NO.16 (INSULATING COMPOUND) TO ALL SOLDER CONNECTIONS.
7. SOLDER USING FWD NO.26(SOLDER) AND FWD NO.27 (FLUX).
8. REFERENCE DESIGNATIONS INDICATED ARE FOR REF ONLY AND MAY NOT BE MARKED ON PART.
9. TORQUE TO 80-100 INCH OUNCES.
10. TORQUE TO 65-80 INCH POUNDS.
11. TORQUE TO 18-22 INCH POUNDS.
12. DISCARD RUBBER INSERT, THREADED SLEEVE AND PLASTIC SLEEVE AT SOLDER POT END OF CONNECTOR.
13. DISCARD MOUNTING HARDWARE SUPPLIED WITH FWD NO.6 SWITCH.
14. MARK FWD NO.5 OR 4 (IDENTIFICATION PLATE) WITH APPLICABLE INFO PER MIL-STD-200, AND INSTALL APPROX AS SHOWN, INDICATE DATE OF MANUFACTURE BY MONTH & YEAR.
15. REMOVE
16. PRIOR TO INSTALLING FWD NO.19 (KNOB) APPLY A THIN COAT OF FWD NO.31 (ADHESIVE) TO FWD NO.8 (SWITCH) AFTER PRIMING WITH FWD NO.32 (PRIMER). TORQUE SET SCREWS TO 40-64 INCH OUNCES.
17. DISCARD FRONT PORTION OF FWD NO.18 (GROMMET) IN HOLE THRU FWD NO.1 (ENCLOSURE) USING FWD NO.24 (ADHESIVE). THEN SECURE FWD NO.17 (LED) AND REAR PORTION OF FWD NO.18 (GROMMET) TO INSIDE OF ENCLOSURE USING FWD NO.32 (PRIMER) AND FWD NO.36 (ADHESIVE).
18. TRIM LEADS AS SHOWN.
19. ELECTRICAL CONNECTORS SHALL RETAIN THEIR PROTECTIVE DUST CAPS.
20. SECURE CONNECTORS P1 AND J1, P2 AND J2, P3 AND J3, AND P4 AND J4 USING FWD NO.28 (STRAP, TIE DOWN).
21. INSTALL FWD NO.41 (MOUNT) USING FWD NO.42 (ADHESIVE) AND FWD NO.43 (ACCELERATOR) LOCATE APPROX AS SHOWN.
22. TORQUE TO 38-110 INCH POUNDS.
23. APPLY FWD NO.22 (COMPOUND) AROUND TOP OF SETSCREW AFTER TORQUING.
24. APPLY FWD NO.44 (ADHESIVE) TO THREADS OF FWD NO.8 (SWITCH) AFTER PRIMING WITH FWD NO.45 (PRIMER). INSTALL FWD NO.6 (DUST) SHUTLY AGAINST PANEL.

25. ALL WIRES TYPE 24 AWG WHITE EXCEPT WHERE NOTED.

26 AWG, WHITE

28 AWG, WHITE

INSTALL FWD NO.2 (COVER ASST) WITH TORX, AND DISPLAY DIAL LOCATED DIRECTLY ABOVE CONTROL PANEL.

VIEW A SCALE: NONE

VIEW B SCALE: NONE

VIEW C SCALE: NONE

VIEW D SCALE: NONE

VIEW E SCALE: NONE

VIEW F SCALE: NONE

VIEW G SCALE: NONE

VIEW H SCALE: NONE

VIEW I SCALE: NONE

VIEW J SCALE: NONE

VIEW K SCALE: NONE

VIEW L SCALE: NONE

VIEW M SCALE: NONE

VIEW N SCALE: NONE

VIEW O SCALE: NONE

VIEW P SCALE: NONE

VIEW Q SCALE: NONE

VIEW R SCALE: NONE

VIEW S SCALE: NONE

VIEW T SCALE: NONE

VIEW U SCALE: NONE

VIEW V SCALE: NONE

VIEW W SCALE: NONE

VIEW X SCALE: NONE

VIEW Y SCALE: NONE

VIEW Z SCALE: NONE

VIEW AA SCALE: NONE

VIEW AB SCALE: NONE

VIEW AC SCALE: NONE

VIEW AD SCALE: NONE

VIEW AE SCALE: NONE

VIEW AF SCALE: NONE

VIEW AG SCALE: NONE

VIEW AH SCALE: NONE

VIEW AI SCALE: NONE

VIEW AJ SCALE: NONE

VIEW AK SCALE: NONE

VIEW AL SCALE: NONE

VIEW AM SCALE: NONE

VIEW AN SCALE: NONE

VIEW AO SCALE: NONE

VIEW AP SCALE: NONE

VIEW AQ SCALE: NONE

VIEW AR SCALE: NONE

VIEW AS SCALE: NONE

VIEW AT SCALE: NONE

VIEW AU SCALE: NONE

VIEW AV SCALE: NONE

VIEW AW SCALE: NONE

VIEW AX SCALE: NONE

VIEW AY SCALE: NONE

VIEW AZ SCALE: NONE

VIEW BA SCALE: NONE

VIEW BB SCALE: NONE

VIEW BC SCALE: NONE

VIEW BD SCALE: NONE

VIEW BE SCALE: NONE

VIEW BF SCALE: NONE

VIEW BG SCALE: NONE

VIEW BH SCALE: NONE

VIEW BI SCALE: NONE

VIEW BJ SCALE: NONE

VIEW BK SCALE: NONE

VIEW BL SCALE: NONE

VIEW BM SCALE: NONE

VIEW BN SCALE: NONE

VIEW BO SCALE: NONE

VIEW BP SCALE: NONE

VIEW BQ SCALE: NONE

VIEW BR SCALE: NONE

VIEW BS SCALE: NONE

VIEW BT SCALE: NONE

VIEW BU SCALE: NONE

VIEW BV SCALE: NONE

VIEW BW SCALE: NONE

VIEW BX SCALE: NONE

VIEW BY SCALE: NONE

VIEW BZ SCALE: NONE

VIEW CA SCALE: NONE

VIEW CB SCALE: NONE

VIEW CC SCALE: NONE

VIEW CD SCALE: NONE

VIEW CE SCALE: NONE

VIEW CF SCALE: NONE

VIEW CG SCALE: NONE

VIEW CH SCALE: NONE

VIEW CI SCALE: NONE

VIEW CJ SCALE: NONE

VIEW CK SCALE: NONE

VIEW CL SCALE: NONE

VIEW CM SCALE: NONE

VIEW CN SCALE: NONE

VIEW CO SCALE: NONE

VIEW CP SCALE: NONE

VIEW CQ SCALE: NONE

VIEW CR SCALE: NONE

VIEW CS SCALE: NONE

VIEW CT SCALE: NONE

VIEW CU SCALE: NONE

VIEW CV SCALE: NONE

VIEW CW SCALE: NONE

VIEW CX SCALE: NONE

VIEW CY SCALE: NONE

VIEW CZ SCALE: NONE

VIEW DA SCALE: NONE

VIEW DB SCALE: NONE

VIEW DC SCALE: NONE

VIEW DD SCALE: NONE

VIEW DE SCALE: NONE

VIEW DF SCALE: NONE

VIEW DG SCALE: NONE

VIEW DH SCALE: NONE

VIEW DI SCALE: NONE

VIEW DJ SCALE: NONE

VIEW DK SCALE: NONE

VIEW DL SCALE: NONE

VIEW DM SCALE: NONE

VIEW DN SCALE: NONE

VIEW DO SCALE: NONE

VIEW DP SCALE: NONE

VIEW DQ SCALE: NONE

VIEW DR SCALE: NONE

VIEW DS SCALE: NONE

VIEW DT SCALE: NONE

VIEW DU SCALE: NONE

VIEW DV SCALE: NONE

VIEW DW SCALE: NONE

VIEW DX SCALE: NONE

VIEW DY SCALE: NONE

VIEW DZ SCALE: NONE

VIEW EA SCALE: NONE

VIEW EB SCALE: NONE

VIEW EC SCALE: NONE

VIEW ED SCALE: NONE

VIEW EE SCALE: NONE

VIEW EF SCALE: NONE

VIEW EG SCALE: NONE

VIEW EH SCALE: NONE

VIEW EI SCALE: NONE

VIEW EJ SCALE: NONE

VIEW EK SCALE: NONE

VIEW EL SCALE: NONE

VIEW EM SCALE: NONE

VIEW EN SCALE: NONE

VIEW EO SCALE: NONE

VIEW EP SCALE: NONE

VIEW EQ SCALE: NONE

VIEW ER SCALE: NONE

VIEW ES SCALE: NONE

VIEW ET SCALE: NONE

VIEW EU SCALE: NONE

VIEW EV SCALE: NONE

VIEW EW SCALE: NONE

VIEW EX SCALE: NONE

VIEW EY SCALE: NONE

VIEW EZ SCALE: NONE

VIEW FA SCALE: NONE

VIEW FB SCALE: NONE

VIEW FC SCALE: NONE

VIEW FD SCALE: NONE

VIEW FE SCALE: NONE

VIEW FF SCALE: NONE

VIEW FG SCALE: NONE

VIEW FH SCALE: NONE

VIEW FI SCALE: NONE

VIEW FJ SCALE: NONE

VIEW FK SCALE: NONE

VIEW FL SCALE: NONE

VIEW FM SCALE: NONE

VIEW FN SCALE: NONE

VIEW FO SCALE: NONE

VIEW FP SCALE: NONE

VIEW FQ SCALE: NONE

VIEW FR SCALE: NONE

VIEW FS SCALE: NONE

VIEW FT SCALE: NONE

VIEW FU SCALE: NONE

VIEW FV SCALE: NONE

VIEW FW SCALE: NONE

VIEW FX SCALE: NONE

VIEW FY SCALE: NONE

VIEW FZ SCALE: NONE

VIEW GA SCALE: NONE

VIEW GB SCALE: NONE

VIEW GC SCALE: NONE

VIEW GD SCALE: NONE

VIEW GE SCALE: NONE

VIEW GF SCALE: NONE

VIEW GG SCALE: NONE

VIEW GH SCALE: NONE

VIEW GI SCALE: NONE

VIEW GJ SCALE: NONE

VIEW GK SCALE: NONE

VIEW GL SCALE: NONE

VIEW GM SCALE: NONE

VIEW GN SCALE: NONE

VIEW GO SCALE: NONE

VIEW GP SCALE: NONE

VIEW GQ SCALE: NONE

VIEW GR SCALE: NONE

VIEW GS SCALE: NONE

VIEW GT SCALE: NONE

VIEW GU SCALE: NONE

VIEW GV SCALE: NONE

VIEW GW SCALE: NONE

VIEW GX SCALE: NONE

VIEW GY SCALE: NONE

VIEW GZ SCALE: NONE

VIEW HA SCALE: NONE

VIEW HB SCALE: NONE

VIEW HC SCALE: NONE

VIEW HD SCALE: NONE

VIEW HE SCALE: NONE

VIEW HF SCALE: NONE

VIEW HG SCALE: NONE

VIEW HH SCALE: NONE

VIEW HI SCALE: NONE

VIEW HJ SCALE: NONE

VIEW HK SCALE: NONE

VIEW HL SCALE: NONE

VIEW HM SCALE: NONE

VIEW HN SCALE: NONE

VIEW HO SCALE: NONE

VIEW HP SCALE: NONE

VIEW HQ SCALE: NONE

VIEW HR SCALE: NONE

VIEW HS SCALE: NONE

VIEW HT SCALE: NONE

VIEW HU SCALE: NONE

VIEW HV SCALE: NONE

VIEW HW SCALE: NONE

VIEW HX SCALE: NONE

VIEW HY SCALE: NONE

VIEW HZ SCALE: NONE

VIEW IA SCALE: NONE

VIEW IB SCALE: NONE

VIEW IC SCALE: NONE

VIEW ID SCALE: NONE

VIEW IE SCALE: NONE

VIEW IF SCALE: NONE

VIEW IG SCALE: NONE

VIEW IH SCALE: NONE

VIEW IJ SCALE: NONE

VIEW IK SCALE: NONE

VIEW IL SCALE: NONE

VIEW IM SCALE: NONE

VIEW IN SCALE: NONE

VIEW IO SCALE: NONE

VIEW IP SCALE: NONE

VIEW IQ SCALE: NONE

VIEW IR SCALE: NONE

VIEW IS SCALE: NONE

VIEW IT SCALE: NONE

VIEW IU SCALE: NONE

VIEW IV SCALE: NONE

VIEW IW SCALE: NONE

VIEW IX SCALE: NONE

VIEW IY SCALE: NONE

VIEW IZ SCALE: NONE

VIEW JA SCALE: NONE

VIEW JB SCALE: NONE

VIEW JC SCALE: NONE

VIEW JD SCALE: NONE

VIEW JE SCALE: NONE

VIEW JF SCALE: NONE

VIEW JG SCALE: NONE

VIEW JH SCALE: NONE

VIEW JI SCALE: NONE

VIEW JJ SCALE: NONE

VIEW JK SCALE: NONE

VIEW JL SCALE: NONE

VIEW JM SCALE: NONE

VIEW JN SCALE: NONE

VIEW JO SCALE: NONE

VIEW JP SCALE: NONE

VIEW JQ SCALE: NONE

VIEW JR SCALE: NONE

VIEW JS SCALE: NONE

VIEW JT SCALE: NONE

VIEW JU SCALE: NONE

VIEW JV SCALE: NONE

VIEW JW SCALE: NONE

VIEW JX SCALE: NONE

VIEW JY SCALE: NONE

VIEW JZ SCALE: NONE

VIEW KA SCALE: NONE

VIEW KB SCALE: NONE

VIEW KC SCALE: NONE

VIEW KD SCALE: NONE

VIEW KE SCALE: NONE

VIEW KF SCALE: NONE

VIEW KG SCALE: NONE

VIEW KH SCALE: NONE

VIEW KI SCALE: NONE

VIEW KJ SCALE: NONE

VIEW KK SCALE: NONE

VIEW KL SCALE: NONE

VIEW KM SCALE: NONE

VIEW KN SCALE: NONE

VIEW KO SCALE: NONE

VIEW KP SCALE: NONE

VIEW KQ SCALE: NONE

VIEW KR SCALE: NONE

VIEW KS SCALE: NONE

VIEW KT SCALE: NONE

VIEW KU SCALE: NONE